

Obituary

Professor Fukuoka, Past President of ISSMFE (1977-1981)

A Memorial Tribute to Late Professor Fukuoka, Past President of ISSMFE (1977-1981)



Nearly one-century long illustrious life of Professor Masami Fukuoka, a former President of ISSMFE came to an end on January 27, 2016. His passing away deprived the most distinguished engineer and highly revered person of the ISSMGE and Japanese Geotechnical community. The period of his 98 years life spanned the gamut of the global change in the modern history of the world after the devastation of the World War.

Born on March 12 in 1917, he was brought up in the village of Hyogo Prefecture due west of Kobe City. He graduated from the Imperial University of Tokyo (Now University of Tokyo) in 1941 and entered the Public Works Research Institute (PWRI) of the Ministry of Construction. Upon the onset of the World War II, he was recruited to the Japanese army and stationed to the Ship Artillery Bureau of Ujina Port in Hiroshima City. After working a little while in the warfront, he returned to Ujina. It was indeed at that time when the atomic bomb was dropped on August 6, 1945. He worked earnestly to rescue victims carrying them to nearby refugee camps and hospitals.

In the spring of 1946, he resumed the position as a research engineer at the PWRI. It was from this point of time that he got off a new start of his long illustrious career as a geotechnical academician and engineer.

Over the war-wrecked land, soils, rubbles and debris were only materials that could be available and used for restoration of the homeland. To make situations worse, the country was plagued unfortunately by dozens of natural disasters such as gigantic earthquakes in Nankai, (M=8.0, 1946) and in Fukui (M=6.8, 1948). In addition, during the period of 15 years from 1945 to 1960, the Japanese Archipelago was plagued by multiple series of typhoons.

Prof. Fukuoka was one of the civil engineers at PWRI who were hard at work on the forefront of the efforts for the nationwide restoration works of infrastructure such as dams, roads, river embankments etc. Without any refined instruments he invented dozens of hand-made devices and makeshift instruments by himself for the purpose of geotechnical works. Then, the era of modern infrastructure development emerged around 1955 to 1970. Construction of highway network, long-span bridges, trans-bay tunnels, rockfill dams and a series of land reclamation works were implemented with considerable amount of investment. Professor Fukuoka acted as a major geotechnical engineer in spearheading these nationwide large-scale projects.



In 1938 when Mr. Fukuoka entered the Imperial University of Tokyo

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In parallel to these activities he acted as a key-role playing young vibrant engineer to establish the Japanese Geotechnical Society (JGS) which was founded as early as in 1949. He was one of the engineers who made significant efforts to shape up the organization and administrative framework of the JGS.

He participated in the 3rd International Conference on Soils Mechanics and Foundation Engineering which was held in 1953 in Zurich, Switzerland. This was the first occasion when Japan sent five delegates to the International arena after the War. Following the Conference in Zurich, he spent about one year at Swedish Geotechnical Institute with Dr. Kjellman. Prof. Fukuoka brought back the Swedish Weight Sounding device to Japan.

In 1971, Professor Fukuoka left PWRI after finishing the term of office as the Director and moved to the University of Tokyo in 1972 as professor of geotechnical engineering. It was at the time of turmoil in the university where the student strife had just subsided but still the campus was plagued with many serious aftereffects to be resolved. Confronted with student activists, he made unflagging efforts to subside their sentiment and to restore the university function as a high educational and academic institution.



Working on Swedish weight sounding (1975)



Upon retirement from the University of Tokyo (1977)



In 1977, Professor Fukuoka retired from the University of Tokyo and moved to a position of professor at the Tokyo University of Science, The department of civil engineering was in an infant stage after it had been inaugurated a few years before. He was instrumental in arranging curriculums and in setting up various facilities for the new department.

Over the years before 1970's, there had been silently fermented voices of request from the International Society to hold the 9th International Conference on Soil Mechanics and Foundation Engineering in Japan. Major persons in academia in Japan had taken it seriously and been looking for an appropriate leader who was capable of achieving this important and tough assignment. Around 1972 Prof. Fukuoka was persuaded to play a major role in organizing the committee to advance this large undertaking. He accepted it and then it was the writer's role to write an important letter of proposal to then Secretary General, Kevin Nash. It is still vivid in the writer's memory to hesitate a little while to throw the epoch-making letter into a red mail box in a postal office in Tokyo. The proposal was filed officially by the Japanese delegates, Professors Fukuoka and Y. Yoshimi, in 1973 in Moscow at the time of the 8th ICSMFE.

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From then onward, preparation was made under the guidance of Prof. Fukuoka, assisted by late Professor A. Nakase and many other colleagues.

The 9th ICSMFE was held on July 11-15th in 1977 at the Imperial Hotel in Tokyo with about 1200 people in attendance. This was a great success, mainly because of the rapidly developing stage of the country involving many construction projects.

Prior to the Tokyo conference, it had been customary in the ISSMFE to have a new president nominated by the incumbent president. It was the first time to use the new method by voting adopted to determine the next president. As a result of several steps of balloting, Prof. Fukuoka was elected to take the term of office as the President for the period of 1977-1981. There were multiple series of heated discussions with the Secretary General, Kevin Nash, concerning the budget and policies in administrating the ISSMFE. It was under the leadership of President Fukuoka that several of the Technical Committees were officially established focusing on important subject areas in the realm of the geotechnical engineering.

A few months before the 10th ICSMFE in Stockholm, Sweden in 1981, the Secretary General, Kevin Nash died suddenly at home. With the loss of a great pillar, the president was shocked, but he wasted no time to nominate Prof. John Burland of the Imperial College to act as the Secretary General for some time. Prof. Fukuoka finished his term of office in 1981 after overcoming several turbulent and difficult issues. In Stockholm, the establishment of Kevin Nash Gold Medal was proposed by the United States National Society and was approved unanimously in memory of his great contribution since 6th ICSMFE in Mexico in 1969. In the writer's memory, Prof. Fukuoka participated in the 11th ICSMFE in San Francisco in 1985, 12th in Rio de Janeiro in 1989 and 13th in New Delhi in 1994 and played an advisory role for the advances and wellbeing of the ISSMFE.



In Rio de Janeiro during the 12th ICSMGE

At home in Japan, activities under Prof. Fukuoka had been incessant and everlasting until a few years before his death. He exercised strong leadership in many of the committees organized by the Japanese Government. To mention a few, he fulfilled the assignment successfully in the planning and implementing committees for the Honshu-Shikoku trans-island large-scale bridges, a 15km-long undersea tunnel across the Tokyo Bay and several rockfill dams about 100 meters high. Upon earnest request, Professors Fukuoka did volunteer to act as testimony for many forensic disputes. He made enormous efforts in advocating defendants in the case of large flow-type landslide accident in Kawasaki which was triggered by an artificial supply of water simulating heavy rainfalls.

In 1976, an accident occurred at a bridge construction site at Yotsugi in Tokyo which was caused by collapse of a ring-shaped bracing beam supporting the excavation for construction of bridge foundations. Prof. Fukuoka acted as a testimony in the court to coordinate the forensic dispute between the plaintiff and defendants.

While his activities spanned the gamut from site exploration to design practice, the stance of his studies has always been oriented to direct observation of prototype performance of geotechnical structures. He did possess strong penchant for full scale behavior of soils and foundations. He persuaded clients earnestly for installing equipment to monitor in-situ soil movement in earth retaining structures and foundations. His technical contribution is characterized by the enormous efforts for prototype field observations. This attitude appears to have been nurtured by his longtime involvements in difficult challenges in many practical construction projects.

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On the subject of research, Prof. Fukuoka's interest was focused on the earth pressures behind various kinds of large scale retaining structures. Near the end of his professional career, he published three books in Japanese entitled "Solve Miracle of Earth Pressure", Vol. 1, 2 and 3. The books summarize outcome of several large prototype measurements of earth pressure that he had been involved in the construction projects. In the early period of his career, he was involved in the investigation regarding causes of a mountain landslide in Nagano Prefecture and Kamenose landslide in Nara Prefecture. Artificially induced landslide in Kawasaki, Kanagawa Prefecture, where several people became victims, did provoke Prof. Fukuoka's keen interest in the rapid nature of soils movements. He performed several large-scale model tests to clarify influence of rapid movement of soils.

Soil reinforcement was another subject area of his interest particularly in the later period of his career. He played a key role in founding the Japan Society of Geosynthetics and acted as the first president of the Japan Society.

In the year 2000, his wife had a stroke. Prof. Fukuoka took care of her for 5 years until she passed away. Throughout his career, he resided frugally in an old house near the ex-PWRI office located in the south bank of Ara River in Tokyo.

Professor Fukuoka was a truly great man blessed with intellectual talent and untiring physical strength and durability. He used all of these transcendental abilities for the advancement of soil mechanics and geotechnical engineering not only technically but also more humanly in the arena of our profession. This man of huge energy and lasting self-dedicated service will be remembered and missed among us forever.

His departure was solemnly seen off in attendance of his two sons and three daughters. He left eight grandchildren and seven great-grandchildren.

Kenji Ishihara